10:45

808-2 Endovascular Treatment of Atherosclerotic Stenosis of the Internal Carotid Artery

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Purpose: To study endovascular treatment (angioplasty-stents) of atherosclerotic stenoses of internal carotid artery to determine if it may partially replace surgical endarterectomy; to evaluate benefits of angioplasty under cerebral protection.

Method and Materials: 131 internal carotid arteries with ≥75% stenosis treated in 124 pts (M 91, F 33) mean age 72.7 ± 10.2 yrs (47–93). Mean lesion length: 15.1 ± 4.1 mm. Mean arterial diameter 5.8 mm ± 0.6 7 pts had contralateral carotid thrombosed. 40% of the pts were symptomatic, 60% asymptomatic (65% had severe coronary diseases, 45% peripheral vascular diseases). Predilatation of the stenosis always performed before stenting. Stents deployed in all carotids but 1: Palmaz stents (n = 95), Wallstent (n = 35), Strecker stent (n = 2), Wiktor (n = 1), NIR (n = 1). 104 carotid art. treated without cerebral protection (fem. approach 89, direct puncture 13, brachial approach 2). 27 carotids treated with cerebral protection (triple coaxial catheter) via fem. approach. Pts had neurological examination, CT scan, echodoppler, angiography before/after procedure and at 6 months.

Results: Immediate technical success for stenosis: 100%. Mean % stenosis reduced from 85.1 ± 7.6 to 2.1 ± 6. Neurological complications: 7 (5.4%). Without cerebral protection: 3 TIAs, 1 minor stroke, 1 major stroke (hemiplegia), with protection 2 major strokes (1 amaurosis, 1 hemiplegia), 3 access site hematomas. No death. 90 pts were controlled at 6 months. We observed 1 mild compression of a Palmaz stent, 4 restenoses (4.4%), 1 silent thrombosis, 1 silent restenosis, 1 symptomatic restenosis (TIA) treated by new angioplasty, 1 restenosis with migration of a Wallstent treated by new PTA and second Wallstent.

Conclusion: Carotid angioplasty with stenting seems safe, effective, can be considered as an alternative to surgery for atherosclerotic stenoses. Cerebral protection has not reduced cerebral complication in this series.

11:00

808-3 Relationship Between Oversizing of Self Expanding Stent and Late Loss Index in the Internal Carotid Artery

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Stenting of the internal carotid artery (ICA) is facilitated by stenting across the carotid bifurcation and sizing the diameter of the self expanding stent to the large common carotid segment. This usually results in marked oversizing of the self expanding stent in the internal carotid segment. To determine the relationship between stent oversizing and the late loss index after stenting of the ICA, we analyzed nominal stent diameters and diameter of ICA by QCA and follow up angiographic result for 54 lesions in 52 patients undergoing carotid stenting. The mean reference diameter of the ICA was 5.12 ± 0.93 mm and nominal stent size was 5 mm in 1, 6 mm in 2, 8 mm in 24 and 10 mm in 27. The mean stent/artery diameter ratio was 1.73 ± 0.26. There were 3 patients who had >50% angiographic renarrowing at follow up. The mean late loss index was 0.46 ± 1.89. There was no linear relationship between stent oversizing and late loss index after stenting (Correlation coefficient r. = 0.24; 95% confidence interval, 1.68–1.82.)

Stent/Artery ratio	n	Late Loss Index (mean ± SD)
1.4	5	3.16 ± 7.94
1.5	10	0.42 ± 0.28
1.6	3	0.26 ± 0.23
1.7	13	0.23 ± 0.41
1.8	8	-0.06 ± 0.49
1.9	7	-0.13 ± 0.55
≥2.0	8	0.27 ± 0.35

Conclusion: The extent of oversizing of self expanding stents deployed in the ICA does not appear to be associated with late restenosis.

11:15

808-4 Successful Bilateral Carotid Artery Stenting After Failed Carotid Endarterectomy

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Background: As treatment for extra-cranial arterial disease, carotid artery stenting may be needed after failed carotid endarterectomy (CEA) for relief of symptoms caused by unilateral or bilateral stenosis of the carotid artery. There have been no reports of the efficacy and safety of bilateral carotid artery stenting in this setting.

Method: Over the past year, we evaluated the results of bilateral carotid artery stent placement (Wallstent, Schneider) in 11 patients (6 males, 5 females, mean age 65 ± 9 years) who presented for treatment of symptomatic bilateral carotid stenosis after failed CEA. All 11 had coronary artery disease and symptoms that included transient ischemic attacks and reversible neurological deficit. Ten patients (90%) had other co-morbid conditions (i.e., COPD, peripheral vascular disease, atrial fibrillation, chronic renal failure) and 6 (54%) had left ventricular dysfunction (EF < 40%).

Results: Bilateral carotid stenting was successful in all patients (reduction in stenosis from 90 ± 5% to 5 ± 3%) with no deaths, MI, strokes, or neurological complications. Post-procedure, two patients (18%) developed groin hematoma that needed surgical repair. On followup (8 ± 2 months), we found no neurologic events and no deaths. Ultrasound duplex scan at 6 months showed no restenosis or stent deformity.

Conclusion: Carotid artery stenting merits consideration as the procedure of choice for relief of symptomatic unilateral or bilateral carotid artery stenosis after failed CEA. To date (8 month followup), no patient has any restenosis; the long-term efficacy of the procedure in this setting needs further study.

11:30

808-5 Carotid Stenting in Patients at Risk for Surgery: Immediate and Long-term Results

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Purpose: To study the risks and benefits of endovascular treatment of stenoses of the carotid arteries in selected patients at risk for endarterectomy.

Methods: From 5/4/95 to 7/20/97 we performed carotid artery stenting on 87 lesions (ls) in 75 patients (pts) (56 males, mean age 70 ± 2 years, range: 61–88), considered at risk for surgical endarterectomy due to concomitant co-morbid illnesses as severe coronary artery disease in 46 pts (61%) or arterial lesions involving difficult surgical access in 29 pts (39%). Thirty four pts (45%) had neurologic symptoms, including transient ischemic attacks (25 pts) and recent stroke (9 pts). The remaining pts were asymptomatic. Mean diameter stenosis was 82% (range: 65–99%). All pts were treated without downflow carotid protection. We used Palmaz stent (25 ls) and Wallstent (62 ls). Bilateral carotid stenting was performed in 9 pts during the same setting.

Results: Technical success: 100%. Procedural success was achieved in 70/75 pts (93.4%). Immediate complications consisted of 4 strokes (5.3%), one with neurologic sequelae and three with complete recovery in 2 days, and 1 TIA (1.3%). At 30-days follow-up, we observed one death (cardiac arrest) and non fatal cardiac events in 5 pts (3 heart failures, 1 PTCA, 1 ventricular tachycardia). No stroke occurred. At follow-up, mean 8.7 ± 6.1 months, we observed: 3 cardiac deaths, no stroke. Available angiographic and/or duplex data at 6 months revealed two restenosis (5.2%), no stent deformation.

Conclusions: Stenting of the carotid vessels represents an acceptable therapeutic option to surgical endarterectomy in some selected patients at risk for surgery.

11:45

808-6 Subclavian and Innominate Arteries Stenting: Acute and Long Term Results

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To evaluate the safety and efficacy of endovascular stenting for treating subclavian (n = 31) and innominate (n = 4) artery stenosis, we reviewed our results in 35 pts (mean age: 62 ± 9 yrs, male = 16) who underwent stenting with Palmaz stent (n = 43) and Wallstent (n = 1). Indications for stenting included arm claudication (n = 21), subclavian steal (n = 5) and compromised internal mammary flow to coronary artery via bypass (n = 9). Lesion locations were ostial (n = 15), proximal (n = 23) and distal (n = 2). All pts received antiplatelet therapy while 25% received additional oral warfarin. Procedural success was defined as abolition of pressure gradient across the aorta and the subclavian artery and a residual diameter stenosis ≤20% without major complications (acute stent thrombosis, myocardial infarction, embolization, emergency surgery or death).

Results: Procedural success was achieved in all 35 (100%) pts and all pts had symptomatic relief acutely. None of the pts had any major complications (see table).

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